PERIODIC TEST 3 : 2025-26

CLASS : X

SUBJECT : MATHEMATICS

10125

Time Allowed : 90 Minutes **Max. Marks : 40**

General Instructions:

i) This question paper has 5 sections A, B, C, D and E.

ii) Section A has 10 Multiple Choice Questions (MCQs) carrying 1 mark each.

iii) Section B has 3 Short Answer-I (SA-I) type questions carrying 2 marks each.

iv) Section C has 2 Short Answer-II (SA-II) type questions carrying 3 marks each.

v) Section D has 2 Long Answer (LA) type questions carrying 5 marks each.

vi) Section E has 2 Case Based integrated units of assessment (4 marks) with subparts of 1, 1 and 2 marks each respectively.

vii) All questions are compulsory. However, an internal choice in 1 question of 2 marks, 1 question of 3 marks and 1 question of 5 marks has been provided. An internal choice has been provided in the 2 marks question of Section E.

SECTION-A (1×10=10)

1. The x-coordinate of a point P is thrice its y coordinate. If P is equidistant from Q (2, –5) and R (– 3, 6), then coordinates of P are : 1

a) (– 3, – 1) b) (– 6, – 2)

c) (12, 4) • d) (9, 3)

2. The centre of a circle is at (2, 0). If one end of a diameter is at (6, 0), then the other end is at : 1

a) (0, 0) b) (4, 0)

• c) (– 2, 0) d) (– 6, 0)

3. The hour hand of a clock is 6 cm long. The angle swept by it between 7:20 am and 7:55 am is : 1

a) $\left(\frac{35}{4}\right)^\circ$ • b) $\left(\frac{35}{2}\right)^\circ$

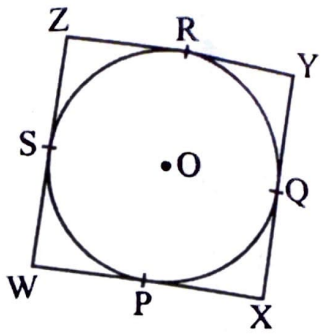
c) 35° d) 70°

4. A wheel rotates 25000 times to cover a distance of 88 km. Find its radius. 1

a) 56 cm b) 284 cm

c) 352 cm d) 88 cm

5. Raghav drew following figure on a board where a circle is inscribed in a quadrilateral. Then he wrote the following relationships. 1



i) $ZW + WX = XY + YZ$

ii) $ZY + WX = ZW + YX$

Which of the above relationship is/are definitely true ?

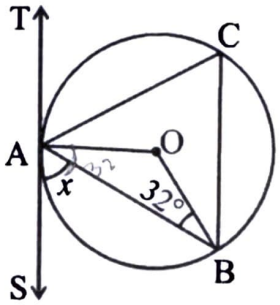
a) only (i)

b) only (ii)

c) both (i) and (ii)

d) neither (i) nor (ii)

6. In the given fig., TAS is the tangent to the circle, with centre O, at the point A. If $\angle OBA = 32°$, then find the value of x. 1



a) 58°

b) 32°

c) 90°

d) None of these

7. How many outcomes are possible when three dice are thrown together ? 1

a) 18 b) 36

c) 54 d) 216

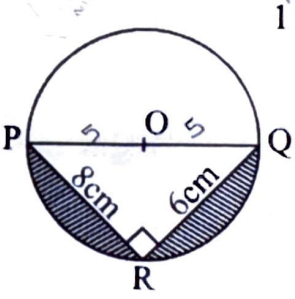
8. Which of the following numbers cannot be the probability of happening of an event ? 1

a) $\frac{7}{0.01}$ b) 0.07

c) 0.70 d) $\frac{0.07}{3}$

9. In the given figure, O is the centre of the circle, PR and RQ are chords of the circle. The radius of the circle is 5 cm, PR = 8 cm, QR = 6 cm and $\angle PRQ = 90°$. 1

What is the approximate area of the shaded region ?



a) $\left(\frac{25}{4}\pi - 24\right)cm^2$ b) $\left(\frac{25}{2}\pi - 24\right)cm^2$

c) $\left(\frac{25}{4}\pi\right)cm^2$ d) $\left(\frac{25}{2}\pi\right)cm^2$

10. In question number 10, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explantion of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explantion of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

Assertion (A) : At a point Q of a circle with centre O and radius 8 cm, a tangent PQ of length 15 cm is drawn then, OP = 17 cm. 1

Reason (R) : The tangent at any point of a circle is perpendicular to the radius at a point of contact.

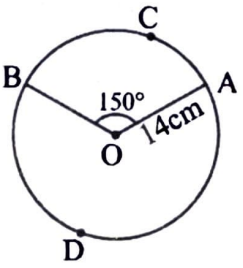
SECTION-B (2×3=6)

Section B consist of 3 questions of 2 marks each.

11. In the figure, calculate 2

a) the length of minor arc ACB.

b) area of sector.



12. The probability of guessing the correct answer to a certain question is $\frac{x}{12}$. If the probability of guessing the wrong answer is $\frac{3}{4}$, find x. If a student copies the answer then its probability is $\frac{2}{6}$. If he doesn't copy the answer, then the probability is $\frac{2y}{3}$. Find the value of y. 2

OR

A card is drawn at random from a pack of 52 playing cards. Find the probability of drawing a card which is neither a spade nor a king.

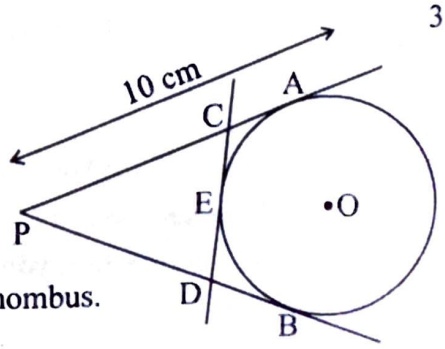
13. The line segment joining the points A (4, −5) and B (4, 5) is divided by the point P such that AP : AB = 2:5, find the co-ordinates of P. 2

SECTION-C (3×2=6)

Section C consist of 2 questions of 3 marks each.

14. If A (5, 2), B (2, –2) and C (–2, t) are the vertices of a right angled triangle with $\angle B = 90°$, then find the value of t. 3

15. From an external point P, two tangents, PA and PB are drawn to a circle with centre O. At one point E on the circle a tangent is drawn which intersects PA and PB at C and D respectively. If PA = 10 cm, find the perimeter of the triangle PCD. 3



OR

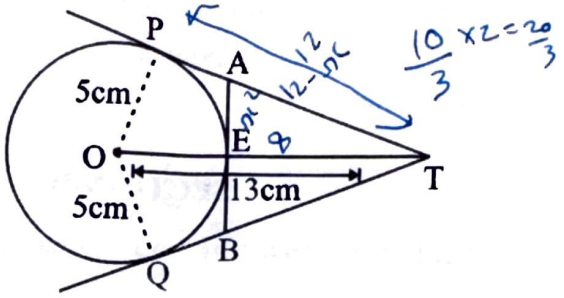
Prove that the parallelogram circumscribing a circle is a rhombus.

(5×2=10)

SECTION-D

Section D consist of 2 questions of 5 marks each.

16. In fig., O is the centre of circle of radius 5 cm, T is a point such that OT = 13 cm, OT intersects the circle at E. If AB is the tangent to the circle at E, find the length of AB, where TP and TQ are two tangents to the circle. 5



17. Point P divides the line segment joining the points A (– 1, 3) and B (9, 8) such that $\frac{AP}{PB} = \frac{k}{1}$. If P lies on the line $x - y + 2 = 0$. Find k. 5

OR

a) Two vertices of a triangle are (–1, 4) and (5, 2). If the centroid is (0, –3), then find the third vertex. 2

b) Find length of the median through the vertex B of a triangle ABC with vertices A (9, –2); B (–3, 7) and C(–1, 10). 3

SECTION - E

Case Study based questions are compulsory. **(4×2=8)**

Case Study 1 :

18. Two friends, Richa and Sohan decided to count the total coins they had saved in their piggy banks. After counting, they found that they had fifty one rupee coins, forty eight ₹ 2 coins, thirty six ₹ 5 coins, twenty eight ₹ 10 coins and eight ₹ 20 coins. They then asked their friend, Nisha to randomly select one of the coins.

Based on the above information, answer the following questions :

i) Find the probability that the coin is ₹ 5 coin. 1

ii) Find the probability that the coin chosen is ₹ 20 coin. 1

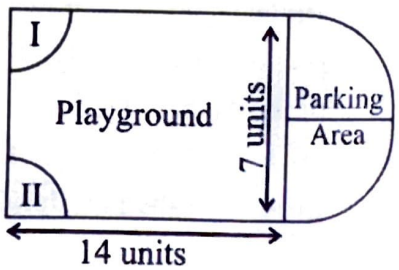
iii) a) Find the probability that coin chosen of denomination of atleast ₹ 10. 2

OR

b) Find the probability that the coin chosen of denomination of atmost ₹ 5.

Case Study 2 :

19. Governing council of a local public development authority of Dehradun decided to build an adventurous playground on the top of a hill, which will have adequate space for parking.



After the survey, it was decided to build rectangular playground, with a semi circular area alloted for parking at one end of the playground. The length and breadth of the rectangular playground are 14 units and 7 units respectively. There are two quadrants of radius 2 units on one side for special seats.

Based on the above information, answer the following questions :

i) What is the total perimeter of the parking area ? 23.24 1

ii) a) What is the total area of parking and the two quadrants ? 2

OR

b) What is the ratio of area of playground to the area of parking area ? 44.7

iii) Find the cost of fencing the playground and parking area at the rate of ₹ 2 per unit. 1

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